



Understanding our changing relationship with space: An international political economy reading of space popularisation



Sarah Lieberman

School of Psychology, Politics and Sociology, Canterbury Christ Church University, St Martins Priory Cottages, North Holmes Road, Canterbury, CT1 1QU, United Kingdom

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1. Introduction

Outer space and the skies to which to turn our gaze, are as central to human existence as the earth upon which we stand. For millennia, we have imagined outer space, and drawn on space for artistic, cultural and religious inspiration. However, the twentieth and twenty-first centuries have altered our perception of space: outer space is no longer solely the remit of myths, legends and changing religious beliefs. Mankind has been to space, has harnessed near outer space for popular usage and has turned the basis for mythology and mystery into an aspect of our earthbound existence. Indeed, space-activity not only forms the basis of much popular fiction, but also provides material for contemporary media events. The moon landings in the late 1960s and early 1970s saw the dawn of international, live televised broadcasting and secured the place of space-activity as an element of pop-culture. Moreover, the popular use of space exploration to sell products, and the ever-increasing use of downstream space technologies and space-based satellite communication tools means that space-activity is as ubiquitous to 20th and 21st centuries as the capitalist consumerism it relies on for continued funding and the products that space-activities promote and advertise.

How we relate to outer space relies on dominant understandings which hinge on the knowledge to which we are exposed. Space-activity is no longer based only in 'science fiction', nor reserved for astronauts and astronomers. Access to the internet, television and inexpensive telescopic equipment, alongside engagement with the products of space technology, means that popular interaction with space is an ever evolving and growing phenomenon. Early interactions with space based religious festivals on the cycles of the moon: for example, early Christianity tied the Easter festival to the "Sunday following the full

moon which coincided with, or fell next after, the vernal equinox" [1]. As space technology has increased, so too has our understanding of the realm beyond our own, and as technology has spread, so too has public engagement. Although we have looked to the skies since time immemorial, the twentieth century was as a watershed period for space engagement: outer space became a tool in the Cold War, and with that, a tool not only of military strength, but also of power through knowledge, ideals and dominant discourse. As such, notions of outer space entered the lexicon of popular culture, featuring in art, music, film and the cultural sphere of the mid-twentieth century.

The first moon landing in 1969 precipitated enormous global enthusiasm for space and its technologies. However, other events, wars, recessions and depressions have prevented both the continued excitement, and continued manned space flight to the moon; as Smith notes "By the end [of the Apollo moon landings in 1972] ... recession was bearing down and a darker harsher world was emerging" [2]. However, despite the drop in public space fervour and indeed in conscious interest in space-going activity, public, albeit often unconscious, engagement with space has in fact increased exponentially with the increase in space based technologies such as the GPS network, satellite television, mobile phone use, widespread broadband availability, and use of mobile 3 and 4G internet services. This paper argues that although we have seen a drop in the pop-culture use of space as a topic of interest, we have not seen a drop in public engagement with space, or public usage of space based technologies: what we have seen is a shift in engagement with space from an ideals based knowledge structure to a production based knowledge structure. We argue that this may be termed a technological shift: from conscious engagement and discourse formation in the 1950s and 1960s, to an unconscious technological engagement in the 2000s and 2010s.

E-mail address: sarah.lieberman@canterbury.ac.uk.

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Acknowledging that popular engagement with outer space has increased with the spread of space-based technologies, this paper establishes a two-fold understanding of the term ‘space popularisation’, linked to the political-economic structures of knowledge, power and hegemonic dominance. First, this article notes that the popularisation of space can be discussed in terms of the use of space and space activity by authors, poets, artists, and musicians as inspiration: thus popularising the topic of space while enhancing the cultural and artistic sphere in terms of what we may term an aspect of the cultural or knowledge structure of power. Second, this paper will emphasise the ever increasing and enhanced use of space for everyday communications, and the ‘popular’ use of downstream space technologies as everyday products. The spread of space based communication products, we class as the spread of knowledge and production, forming part of the important power structures outlined by Susan Strange.

This paper addresses theoretical debates based in the school of International Political Economy (IPE), using empirical discussion of space activity alongside theoretical debate, to analyse and examine both the issues of power and the global hegemonic knowledge structure, and the question of space activity, space use and popular engagement.

In a first section, this paper will address questions relating to power, the relationship between different forms of power and critically evaluate theories of power and the extent to which we can apply their major tenets to the issues of space activity and its popularisation. This section will then provide a critical overview of Susan Strange’s work, focusing largely on her four structures of power as outlined in her seminal work “States and Markets” [3]. From this, we take a closer analysis of one particular power structure, the knowledge structure, and ask; to what extent and in which specific ways does the knowledge-as-power structure impact on space popularisation, and vice versa?; is it impacted upon by the exploration of space? In a second section, this article will explore aspects of the history of public engagement with space, and space popularisation. In this section, knowledge is addressed in two ways: first in terms of knowledge as ideas, ideals and ideology, the extent to which popularisation is used to form dominant discourses and cement political ideology; second, knowledge is addressed as it combines with the production structure to create what we term, technology. In a concluding section, this paper suggests that a shift has occurred from knowledge as ideals and ideology forming the basis for space popularisation to knowledge as technology forming the basis for public engagement with space.

2. International relations and space power

The politics and international relations of space activity is an area of academic study that has not yet attracted wide-scale discussion. As such, this area of analysis does not have the theoretical basis that has developed around other, land based, aspects of international relations. Subsequently, to analyse relations in space we must borrow frameworks of analysis from other cognate disciplines. This article thus discusses power, realist political structure and the international political economy, to develop a framework of analysis which allows the analysis of international relations in space. Starting with a general analysis of power, this section will then move to a realist reading of power before addressing Susan Strange’s interpretation of the international political economy, through which we establish the basis of evaluation for this paper.

Power is central to space activity and space exploration on several different levels, from the political to the physical. According to NASA, the USA’s national space agency, “the three Space Shuttle Main Engines, in conjunction with the Solid Rocket Boosters ... consume[d] liquid fuel at a rate that would drain an average family swimming pool in under 25 s generating over 37 million horse power” [4] as they propelled the Shuttle spaceward. Alternatively, we can define power as a precise astro-physics equation used to generate the calculations necessary for

space flight. In this sense, power can be calculated as work/time: “power is the work done in a unit of time ... a measure of how quickly work can be done” [5]. These conceptions of power are essential to the space sector, and are therefore essential to the contemporary forms of popular engagement with outer space that require hardware to be sent to, and to operate outside, the earth’s atmosphere. However, in space, we see several different important forms of power at play: power has political, economic and social synonyms of equal importance to the space sector; these relate to states, international relationships, public private partnerships and cultural development. If we look to International Relations (IR) theories, and theories of international political economy, we begin to understand what power is, where it comes from, and why it truly is central to space exploration, travel and activity.

2.1. Space relations, international relations

The analysis of international relations played out in space not only suffers a paucity of theoretical discussion due to its relatively recent appearance on the academic table, but also due to the state, and land, based assumptions made by most relevant frameworks. That is not to say that such discussions are, however, irrelevant. Although realist conceptions of international relations consider the state to be the main currency of international political interactions, they also understand sovereignty and security to be the commodities that are most clearly sought [6], issues that are also at the heart of space power and space politics. And, while the international relations, or geopolitics of outer-space may be considered by some theorists to surpass the sovereign limits of the state – as Pfaltzgraff [7] notes “what is unique about space is the fact that we are dealing with infinity. Whereas the terrestrial land mass and the seas have knowable finite bounds, we literally do not know where space ends or understand the implications of infinity or how we theorize about space” - others argue that statist and global debates are relevant to any area in which states fight for supremacy and influence. On this, Herzfeld [8] notes: “Because of the strategic value of space ... space commands special importance and has become a critical national resource”. Moreover, reaching outer space, and all business conducted in outer space is done either by nation states or corporations acting along state based assumptions of global power relations. Theories of international relations and geopolitics cannot therefore be ignored despite the area of discussion lying outside the traditional realm of the ‘state’ or indeed the international arena. Pfaltzgraff [7] further notes that “Because all IR theories either *describe* or *prescribe* interactions and relationships, space becomes yet another arena in which to theorize about the behaviour of the world’s political units”, and that the worlds’ political units, be they states or non-state actors, seek power. All space activity is therefore carried out by power seeking political units, or wealth seeking corporate units: as Pfaltzgraff [7] tells us, “Space is an arena in which competition and cooperation are already set forth in terms and issues reminiscent of Earth-bound phenomena. Space power includes assumptions drawn from IR theory.”

Indeed, if discussing *Earth-bound phenomena*, we should note that our near orbit, or inner usable atmosphere, might be considered *earth space* rather than *outer-space* given our use of the area, its proximity and its distinction from the rest of the unknown and unusable universe. Indeed, we can compare its use to other important trade, transport and communication routes or tools. Leissle [9] notes that “this has happened earlier in history” and draws a comparison between space and notions of the ‘high seas’. Leissle discusses the development of international regimes for space, via analysis of naval power from the sixteenth century to the early early twentieth century as regards the assumption that states require access to both for economic, social and security advancement and provision: all areas in which the state and other actors have rational and clear objectives to fulfil. On such a view of space, we note that its popularisation is moot: space is essential to contemporary politics and modern, everyday life.

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